



CALCULATING AND EVALUATING OF THE ACHIEVEMENTS OF QUALITY MANAGEMENT ENGINEERING IN THE PHARMACEUTICAL MANUFACTURE COURSE FOR PHARMACEUTICAL ENGINEERING MAJOR

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ABSTRACT

In the process of self-direction, the students naturally follow the perspective of constructivism, but they are not able to follow the process of constructivism as a whole, for this they needed a tutor. To make mathematical learning more effective while doing self-study, the students can use multimedia-based e-learning material along with a constructivist approach.

Constructivism can be imbibed in the perspective of self-direction. A student's ability to reflect his self-efficacy of learning. Self-efficacy corresponds to the student's will power to learn which is contrary to his own anxiety. If the student's self-efficacy is high then his anxiety will be less and similarly his anxiety will be higher than the self-efficacy is less. Higher self-efficacy of the student makes it easier to learn therefore his concept formation is more recognized.

Permanently obtained conception by the student increases his achievement. Construction and deconstruction are two important methods of learning. Human's cognition constructs new experiences, facts and concepts by removing the concept, facts and principle which is old and cannot prove to be logical at the current time. After this the cognition of person adds to the new knowledge in the previous knowledge whereby the knowledge of human beings is increased and enhanced.

KEYWORDS: Constructivism, Self-direction, Self-efficacy, Concept formation, Construction and Deconstruction.

INTRODUCTION:

Constructivism is the process of learning something new based on prior knowledge of the learner. A person tries to adjust himself with the environment and his prior knowledge. He analyses the signals from the environment with his prior knowledge and experiences are known from him, which add to his previous knowledge and modified it. Due to which his knowledge increases continuously because a human being receives some new signal from the changing environment around him for a lifetime which he can analyse by his conscience. Those who add to his previous knowledge and purified it then as a result knowledge of humans increases.

In this way his mental and intellectual development takes place and he begins to understand himself and society, socialism begins to flourish in him. Now he is not only personal like his infancy state but he starts identifying him in both personal and social form. But he is not able to follow constructivism completely for that he needs a teacher. We can say that humans use the constructivist approach unconsciously to learn something new throughout their life because the process of what he learns himself and the process of learning from constructivism are both similar.

To educate a child is like teaching him something useful and meaningful in his life. When the child starts learning any subject, theory, rules etc., then he passes through the process of constructivism and is also following it which depends on his intellectual ability himself. The self-acquired learning and knowledge will be permanent.

Stable learning of the students is very essential in the educational world. The main reason for this is that if we want to give the right direction to the physical, mental and Intellectual capacity of the child then it becomes necessary to educate him in that direction. A child can be educated only if he is willing to get education i.e., it is very important for the child to have the motivation to get education. The strong motivation to get education will motivate his inner being to know and understand the new educational facts, therefore he will be excited to learn. After knowing the importance of education in life the child can be motivated to learn.

The willpower of learning turns him to self-study and he starts to pay a special interest in teaching-learning. By knowing the motivational power of learning and the importance of teaching-learning in life, he also gets excited to do self-study. It is necessary for the child to have the desire to learn and to have enthusiasm for teaching-learning so that his interest arises to study various subjects.

Ya Ling Lee (2005), believes that self-study can be made effective through constructivism and e-learning. Anna Stetsenko & Igor Arievitch (1997), described about the construction and deconstruction of knowledge according to the result obtained in his research. whereas Philip C. Candy (1989), find out in his research that the process of constructivism is compatible with the process of self-direction of the child. We can say that self-direction is an important base of constructivism because in the process of constructivism the prior knowledge of human is prominent and the knowledge can be attained only when he directs him-

self to attain enlightenment.

OBJECTIVES:

The objectives of the study are as follows-

1. To analyze the perspective of self-study with constructivism.
2. To analyze the relationship between will power of work and anxiety
3. To analyze the relationship between self-efficacy and anxiety of students.
4. To analyze the relationship between self-efficacy and desire of work.
5. To analyze the role of constructivism in self-study with e-learning materials.

REVIEWS OF RELATED LITERATURE:

The researcher studied various reviews related to self-study with constructivism and found various important facts which are related to self-study, constructivism, self-efficacy and anxiety. these researches are as follows:

Philip C. Candy (1989) Investigated a research on "Constructivism and the Study of Self-direction in Adult Learning". The result of the research was that self-direction is a major thing. constructivism is adoptive in the perspective of self-direction under the process of active learning. Constructivism is according to the perspective of the direction. It indulges active learning, Independent learning and meaning formation of the students themselves.

Anna Stetsenko & Igor Arievitch (1997) conducted research on the topic "Constructing and Deconstructing the Self: Comparing Post-Vygotskian and Discourse-Based Versions of Social Constructivism". They concludes that human experiences recognized his personal and social nature simultaneously in society through construction and deconstruction. So, he is both social and personal at one time. When the personality of a human being consists of sociality, he expresses two personalities at a time. He expresses his personality both socially and personality at the same time.

Graham D. Hendry & others (1999) Conducted a research on "Constructivism and Problem-based Learning". They concluded that self-efficacy and anxiety may be considered high or low with the desire of work. When the self-efficacy will be more then there is more willingness to work and then anxiety will be low. Similarly, when anxiety will be higher then self-efficacy will be low.

Self-efficacy becomes proportional to desire to work and it is inversely proportional to the anxiety of the students themselves. To achieve the highest learning in the PBL course, optional learning environment such teaching is considered appropriate which is reflective and cooperative with this Independent study required adequate time and formative & summative assessment.

Ya Ling Lee (2005) conducted the research and the topic was "Integrating

Constructivist approaches in e-learning to enhance mathematical self-study". He found that by using the constructivist approach self-study becomes reliable when used tutorial-based e-learning programs. It implies only studying textbooks of Mathematics by self, students cannot understand properly the mathematical concepts. We can say that constructivism is not followed completely by the students through self-study therefore they require a tutor which completes the process of teaching-learning. Self-study can be useful to learn mathematics if students add to the constructivist approach with multimedia-based e-learning material in paper-based modules.

Sofie M. M. Loyens & others, (2007) Conducted a research and the topic was "The impact of students' conceptions of constructivist assumptions on academic achievement and drop-out". The result of the study was that actual learning activity creates an indirect relationship between construction and achievement. The student's cognition plays an important role to acquire knowledge in learning processes and it predicts the future active learning. Student realize that the role of knowledge is very important in learning so that in future he becomes even more active in learning. The student who are unable to learn, he does not know the importance of knowledge in life that he is not even motivated to learn which does not enable him to achieve higher learning and their learning does not increase. In this way it is not possible to predict how much he will learn in the future and how he will learn. Therefore, the student who knows the importance of knowledge in learning. We can guess about his future that He will also learn in future and his learning will continue to grow in this way. Sofie M. M. Loyens & others, described that constructivism presents an effective perspective of learning. They found an indirect relationship between conception and achievement in this active learning activities played the role of a mediator.

D. Garbett (2011) conducted research on the topic "Constructivism Deconstructed in Science Teacher Education". He concluded that When the student studies self in the subject of science, then there is a lot of difference in the perspective of both imagination and reality. Which can be identified by the diagnosing, engage and evaluation. When the students does self-study in the subject of science, then he thinks according to the facts stated in the science subject. There is a lot of difference in the real fact and imagination of students about these facts.

ANALYSIS OF REVIEWS:

Constructivism recognizes that the teacher's role helps students to develop new understanding. Planned learning is useful to learn unknown concepts by the learner when he applies new learned knowledge in a new situation. So, he wants to experience the concept of knowledge taught by the teacher in the same way as he learned. The gaps between imagination and reality can be found by self-study in science teaching using diagnose, engage and evaluate (Dawn, Garbett, 2011).

Self-study is also a component of modern distance education. The development of student's learning in mathematics is inversely proportional to their unreliable and uncontrollable mathematical difficulties. Teachers can improve student's understanding through concrete to abstract teaching methods, probing questions and guided discovery using the constructivist approach. Therefore, the constructivist approach should be integrated into e-learning so that the study of mathematics can be promoted (Berg, 2000). Educational technology can also achieve success in the real sense only when it is used in effective learning theories (Ya Ling Lee, 2005).

In the process of self-study, the person explores actively the concepts, facts and relation of mathematics. This active engagement requires advanced multimedia tools like animation interactivity and simulation. Through advanced technology students can visualize their animated presentation and can monitor variables in interactive activities. Studies done in this way can help students to get distance education.

Students pursuing distance education can get effective learning in mathematics if they use constructivist and multimedia-based e-learning material (Ya Ling Lee, 2005). Self-direction is an important academic research which type of research is dominated by the empirical paradigm (Philip C. Candy, 1989). The result of his research that all action are present in the constructivist approach which maintain to the self-direction and help in it.

The student automatically always uses the constructivist approach inadvertently during self-study. He first takes the subject matter which he has studied to his previous experience and then tries to reconcile the previous experience and the new facts. If he is successful in this, he tries to live the known new facts in real life and makes them a part of his experience that is later that the new fact becomes his experience. We can also say that just giving self-direction is like an attempt to move towards constructivism and adopt it.

Constructivism carries out all the activities of self-direction, active learning, self-learning task and meaning making. Through all the above mentioned process the learner keep experiencing his cognition with new facts and as a result his knowledge increases (Philip C. Candy, 1989). Graham D. Hendry & others, (1999) described that in the same proportion as a human's desire to work is powerful, he is able to speed up his learning accordingly his work is performed. The will-power of work is inversely proportional to human's anxiety. In the mathematical operation we can write it this way:

$$\text{Self} - \text{efficacy} \propto \frac{1}{\text{anxiety}}$$

$$\text{Self efficacy} \propto \text{Desire of work}$$

Anna Stetsenko & Igor Arieivitch (1997) accepted in the research that constructing and deconstructing are two ways through which a human can experience himself his social and personal nature simultaneously. When a person starts knowing society then he starts rejecting such beliefs in his personal life which he feels opposite when he comes in contact with the society It is called deconstructing process. After that new ideas are constructed on the basis of nutrients known by experience in the social environment. In this way a person becomes social and his personality, ideology, functioning etc., all get modified according to the influence of society. Now he knows about both society and himself. Therefore, he constructs the new ideology by the deconstructing his old ideology from the new truth known in life.

Sofie M. M. Loyens & others (1997) says that when the child gets busy with the actual learning activity then an indirect relationship is formed in between the learning or concept formation and achievements. He considers constructivism to be an effective perspective of learning.

RESULT:

Analyzing the different types of reviews in the presented research paper the following results were obtained:

1. The child who knows his characteristics also knows how to use them, for which he will need to be guided. It is important for the student to be self-directed to learn or do something creative.
2. Self-direction is very important for self-study. In which constructivism plays an important role.
3. Constructivist approach can be used to motivate a student towards self-study to make self-directed himself.
4. This approach is a very effective learning perspective through which the student achieves stable learning.
5. Constructivism is used in the construction of thought knowledge and principal.
6. Constructivism is used in eliminating or modifying concepts from the cognition of a child.
7. Construction and deconstruction both are processes of knowledge enhancement and knowledge refinement that are related to constructivism.
8. when constructivism is used with an e-learning app while doing self-study then the learning can be made very effective.
9. Self-study and self-direction can be called as significant tools of constructivism.

CONCLUSION:

Students unconsciously and consciously follow the process of constructivism while doing self-study but it is an incomplete process. In order to achieve stable learning, it is necessary to adopt the process of constructivism properly for which the student needs a teacher who completes all the steps of the constructivism method properly. The student can easily achieve stable learning self-study and self-direction is two important aspects of constructivism. There are two processes accomplished during concept formation. These are construction and deconstruction. The new idea is constructed after deconstructing the old idea.

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